REMARKS

Amendments

The specification is amended to refer to Figures 1A-1C, submitted August 13, 2002 and December 16, 2002, which replaced original Figure 1. No new matter is added.

The claims are amended to further clarify the relationship of several elements. In addition, claim 11 is amended to recite that the embodiment does not contain a treatment zone (7). New claims 25-30 are directed to individual alternative embodiments recited in claim 18. Also, claim 15 is amended to depend from new claim 25, rather than cancelled claim 13.

Drawings

By the above amendments to the specification, applicants have provided a brief description of Figs. 1A-1C. Withdrawal of the objection is respectfully requested.

Claim Objections

It is believed that all of the objections to claim language are rendered moot by the above amendments. Withdrawal of the objection is respectfully requested.

Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 11, 12, 15, 16 and 18-24 are rejected under 35 USC §112, second paragraph, as allegedly being indefinite. This rejection is respectfully traversed.

While it is respectfully submitted that the prior claim language was sufficiently definite to one of ordinary skill in the art, the claims are amended to further clarify the relationship of several elements. Withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. §102(b) in view of Parker et al. (US 3,457,163)

Claims 11, 15, and 18-21 as allegedly being anticipated in view of U.S. '163. This rejection is respectfully traversed.

U.S. '163 relates to a process for pyrolysis gasoline. The process includes a separator 15, a reactor 21, and a reactor 34. However, Parker does not teach or suggest a stripping zone. Rather, U.S. '163 teaches a separation zone, which can encompass a vast array of separating mechanisms. Failing to teach this feature Parker cannot anticipate the claimed invention.

Rejection Under 35 U.S.C. §103: US '163 and Louie et al. (US 4,990,242)

Claims 12 and 16 are rejected as allegedly being obvious in view of US '163 in combination with Louie et al. (U.S. '242). This rejection is respectfully traversed.

U.S. '163 relates to the stabilization of pyrolysis of gasoline. See, e.g., column 1, lines 30-35, and column 2, lines 51-52. U.S. '163 discloses a process for selective hydrogenation of diolefins contained in a steamed-cracking gasoline, i.e., pyrolysis of gasoline, and the removal of gum-like compounds. Particularly, U.S. '163 has two primary objectives: 1) removing diolefins from pyrolysis gasoline without destroying the olefins, and 2) simultaneously removing diolefins, olefins and sulfur compounds from an aromatic portion of the pyrolysis gasoline. See column 2, lines 53-58. Furthermore, U.S. '163 discloses that gasoline line 30 that contains olefins is sufficiently stabilized. See column 6, line 73, to column 7, line 2.

Thus, U.S. '163 fails to teach or suggest that its process for pyrolysis of gasoline would be used successfully with a FCC gasoline. Particularly, the composition of FCC gasoline is quite distinct from pyrolysis gasoline. Please see the attached tables for exemplary compositions of a pyrolysis gasoline and FCC gasoline. Moreover, pyrolysis gasoline generally has an aromatic content of about twice that of pyrolysis gasoline and a diolefin content of about 23 times that of FCC gasoline. Furthermore, there is no motivation to treat pyrolysis gasoline on a hydrotreatment catalyst because in pyrolysis gasoline the olefins are sufficiently stabilized.

The process described in U.S. '242 is a hydrotreatment process in which a petroleum distillate feed stock is first split via fractionation to provide at least two different boiling point fractions. One of the fractions is the top distillate stream which has a low sulphur content

(e.g., a 350/575°F fraction) and the other is a lower distillate stream which has a relatively concentrated sulphur content (e.g., a 575/700°F fraction). The process utilizes two hydrotreatment zones, each of which contains a catalyst. But there is no description of a reactor containing a palladium catalyst. In the first hydrotreatment zone, the top distillate stream from the fractionation step is subjected to hydrotreatment with an excess of hydrogen to obtain a first effluent. In the second hydrotreatment zone, the lower distillate stream, in admixture with excess hydrogen, is subjected to hydrotreatment to produce a second effluent. See column 4, lines 3-64.

The two hydrotreatment zones can operate under different reaction conditions such as different pressures, see, e.g., column 5, lines 15-30. In addition, rather than having two separate hydrotreatment zones, a single hydrotreatment zone can be used wherein the two feeds sent to the single hydrotreatment zone are alternated. See, e.g., column 3, lines 34-35 and the embodiment of Figure 2 which is discussed at column 6, line 62 - column 7, line 47.

U.S. '242 discloses that "petroleum distillate feed or feed stream" is meant to include virgin controlled feedstock or a distillate thereof. Particularly, U.S. '242 emphasizes that a light catalytic cracker oil (LCCO) can advantageously be treated.

However, as discussed above, pyrolysis gasoline and FCC gasoline are quite distinct. Applicants respectfully submit that one of ordinary skill in the art would not be motivated to modify a process for treating a pyrolysis gasoline (relevant to U.S. '163) in view of a process for treating LCCO (relevant to U.S. '242). Further, as the olefins in line 30 of U.S. '242 are stabilized, there is no suggestion to treat the gasoline with a hydrotreatment catalyst. Consequently, Applicants respectfully submit that there is insufficient motivation to combine these references, and these rejections should be withdrawn.

In view of the above remarks, it is respectfully submitted that U.S. '163, taken alone or in combination with U.S. '242, fail to render obvious Applicants' claimed invention. Withdrawal of the rejection under 35 U.S.C. §103 is respectfully requested.

Rejection Under 35 U.S.C. §103: US '163 and Cosyns et al. (US 4,208,271)

Claims 22-24 are rejected as allegedly being obvious in view of US '163 in

combination with Cosyns et al. (US '271). This rejection is respectfully traversed.

U.S. '163 has been discussed above. U.S. '271 is also directed to a process for treating pyrolysis gasolines. See, e.g., column 3, lines 13-24. It fails to teach or suggest a stripping zone and thus cure the deficiencies of U.S. '163, as discussed above. Consequently, Applicants respectfully submit that these rejections should be withdrawn.

Rejection Under 35 U.S.C. §103: U.S. '242 and Guth et al. (US 3,847,800)

Claims 12 and 18 are rejected as allegedly being obvious in view of US '242 in combination with Guth et al. (US 3,847,800). This rejection is respectfully traversed.

U.S. '242 is silent with respect to the disclosure of any sweetening zone. Applicants traverse the assertion that caustic washing liquid products at column 6, lines 37-40, constitute a sweetening zone as in the context of the present invention. In particular, there is no disclosure or suggestion concerning a sweetening zone upstream of a hydrotreatment zone or downstream of a stripping zone. Moreover, the citation of U.S. '800 fails to cure this deficiency. See, e.g., Fig. 1 which does not show either a hydrotreatment zone or a stripping zone. Supererogatorily, U.S. '242 is silent with regards to a selective diene hydrogenation zone. In particular, U.S. '242 provides no disclosure or suggestion of a selective diene hydrogenation zone between a fractionation column and a hydrotreatment zone.

In view of the above remarks, favorable reconsideration is courteously requested. If there are any remaining issues which can be expedited by a telephone conference, the Examiner is courteously invited to telephone Counsel at the number indicated below.

Respectfully submitted,

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TABLE 1

STEAM-CRACKER GASOLINE

Initial point	20°C
Final point	196°C
S (total)	50ppm
S (mercaptan)	15ppm
Bromine number	75
MAV	102
Paraffins	10% by weight
Olefins, Cycloolefins	10% by weight
Diolefins + Styrenics	23% by weight
Aromatics	57% by weight

TABLE 2

Crude FCC petrol cut

Initial point	20°C
Final point	166°C
S (total)	224ppm
S (mercaptan)	72ppm
Bromine number	67
MAV	20
Paraffins	29.9% by weight
Olefins, Diolefins, Cycloolefins	37.3% by weight
Diolefins	1.1% by weight
Naphtene	9.1% by weight
Aromatics	22.6% by weight
Cut C5, total	29.5% by weight
C5, non saturated	15.5% by weight
C5, etherifiable products	6.2% by weight
Cut C6, total	23.3% by weight
C6, non saturated	9.8% by weight
C6, etherifiable products	3.6% by weight